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ORR CONTRIBUTION TO NIE 11-14-64

CAPABILITIES OF SOVIET GENERAL-PURPOSE FORCES
1964-70

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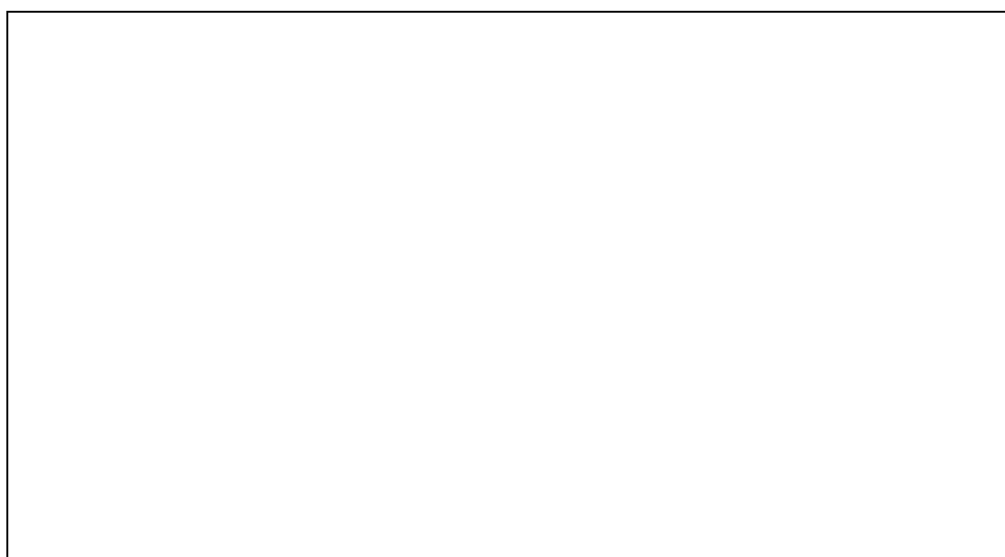
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FOREWORD

This contribution to NIE 11-14-64 presents the evidence regarding Soviet theater forces that has been acquired since the preparation of the General Purpose Forces section of the Intelligence Assumptions for Planning (IAP). Specifically this contribution brings up to date our knowledge of (1) Soviet policy and doctrine for ground, naval, and air theater operations; (2) the Soviet Tactical Air Force and the Satellite Air Forces; (3) the Soviet Naval Surface, Submarine, and Air Forces; and (4) the Soviet tactical missile systems. In addition, the contribution reviews briefly the evidence pertinent to Soviet development of an antitactical ballistic missile (ATBM) system and the effects of the low wartime birth rate on the manpower available for military conscription since 1959.

No attempt has been made to review Soviet ground force capabilities as this subject remains under consideration by the Joint CIA/DIA Panel Study Group. Also, there is no consideration herein of the airlift or sealift forces, because little could be added to the material contained in the IAP.

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CAPABILITIES OF SOVIET GENERAL-PURPOSE FORCES
1964-70

I. Recent Trends in Soviet Policy and Doctrine Regarding General-Purpose Forces

Soviet doctrine for the employment of general-purpose forces has been changing in recent years as the focus of Soviet strategic thinking has shifted from its traditional preoccupation with continental land warfare to the problems of intercontinental warfare waged with advanced weapons systems. Thus far this process has affected mainly the technical aspects of the employment doctrine -- questions concerning the utilization of weapons, the composition of forces in theater operations, command and control, and so forth. Broader questions affecting the relationship between theater campaigns and global operations or the role of theater warfare in a general nuclear war have been scarcely touched. On these questions, Soviet doctrine has assumed until recently an ambivalent position, holding, on the one hand, that general nuclear war may be decided in its initial moments by nuclear missile strikes, and, on the other, that the "final" victory in such a war will require the coordinated action of all branches of the armed forces -- that is, the action of general-purpose forces in theater operations.

The ambivalence of Soviet doctrine on these questions mirrors a controversy on the level of practical policy that has been agitating the Soviet leadership for several years. Khrushchev's military policies during these years -- aimed at focusing the Soviet defense effort on

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the strategic forces at the expense of the traditional arms -- have encountered persistent opposition from the military leadership. Public contention has arisen over questions of the allocation of resources, the structure of the armed forces, and the kind of war for which the Soviet armed forces should be equipped and trained to fight. The result has been something of an impasse in defense policy: Khrushchev's efforts at reform have been deflected, modified, and even blocked. A military establishment adapted to the requirements for large-scale theater warfare on the European continent has continued to coexist with a military doctrine increasingly oriented toward the threat of nuclear warfare with a transoceanic enemy.

In recent months, signs have accumulated that this impasse may be breaking. A new phase of controversy has been underway that appears to reflect pressures for change at the policy level. The character of the controversy, the circumstances in which it has developed, and the trends that it has exhibited suggest that a new step is being taken to resolve the inconsistencies in the existing doctrines concerning strategic and theater warfare.

The latest phase in the controversy opened at the end of 1963, when an announcement by Khrushchev that a military manpower cut was being contemplated evoked a visible negative reaction from military leaders. It is now known that this announcement came at a time when a new program of strategic missile deployment was just getting underway. This coincidence, plus the initiation in the military press at the same

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time of a new discussion of military doctrine -- recalling the discussion initiated by Khrushchev in connection with his earlier reform program in 1960 -- suggested that a new effort was getting underway to bring Soviet military policy into line with Khrushchev's strategic concepts. []

The initial course of discussion in the military press during the early months of this year, however, indicated little progress for reform. Although most of the articles in the new doctrinal series exhibited a veneer of modernist verbiage, many of them reiterated traditionalist arguments tending to support the need for maintaining theater warfare capabilities in contemporary conditions. A virtual resurgence of traditionalist agitation occurred at one stage in the discussion when a cluster of articles appeared openly extolling the "older" arms and even questioning the validity of newer "official" concepts. On the practical level, also, reform appeared to be faring poorly. Khrushchev's proposal for the reduction of manpower remained officially in force, but there was very little evidence that any substantial force reductions were actually taking place. In the meantime, the military leadership maintained a conspicuous silence on the measure. []

In spite of these unfavorable auspices, however, the discussion took a turn in Khrushchev's favor and has now resulted in a major new doctrinal formulation that strongly reinforces his campaign for reform. The principal contribution of the new formulation is to remove the ambiguity that heretofore surrounded the Soviet concept of the

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employment of theater forces in nuclear war -- namely, the ambivalent position that the outcome of such a war might be decided in its initial moments and yet require the coordinated action of all arms to insure final victory. According to the new formulation -- presented in an authoritative article written by Marshal Sokolovskiy -- the outcome of a future nuclear war will be decided in "minutes, hours, and days" and cannot be protracted. ☐

Other Soviet spokesmen, including Khrushchev, have previously predicted that a nuclear war might be short, but none has previously asserted categorically that it could not be long. The importance of the new formulation lies in the fact that it removes a conceptual premise on which the advocates of capabilities for large theater forces have heretofore pressed their case -- namely, the view that a nuclear war could not be successfully brought to a conclusion without the destruction of the enemy's forces on the ground and the seizure of his territory. The new formulation does not rule out a role for theater forces in a future nuclear war, but it appears to clear the ground for a more precise definition of that role and for a differentiation of that role from that of the strategic forces. ☐

Other aspects of the Sokolovskiy article bear out this general assessment. The picture that it projects of theater operations in a general nuclear war suggests greater flexibility in the employment of forces than has heretofore been evident in similar discussions of this subject. The possibility that ground troops may not be required in

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some theaters is allowed, and an element of contingency is introduced into the question of whether nuclear exchanges will be immediately followed by a general offensive by the ground forces in Europe. Moreover, in differentiating the length of a nonnuclear war from a nuclear war, the article appears to be forecasting a doctrine and policy for limited war contingencies.

It would be premature, however, to regard the Sokolovskiy article as marking a final turning point in the internal Soviet debate over military doctrine. Already in the few weeks that have elapsed since its publication, writings have appeared that contradict its spirit and some of its specific postulates. Nevertheless, the reputation of Sokolovskiy gives grounds for believing that the article is intended to announce a new consensus on the subjects under discussion. As such, it may be interpreted as reflecting the views that are now likely to predominate in the formulation of military policy.

II. Military Manpower

The question of the size of the Soviet armed forces has been at the center of the debate over military policy in the USSR since Khrushchev announced his program for a drastic reduction of military manpower in January 1960. Both the economics and the politics of Soviet defense policy have been so intimately interwoven with this question in the intervening years that it can scarcely be regarded as a mere technical issue concerning the availability of eligible manpower or the competing demands of the civilian economy. Nevertheless, these factors -- birth

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rates and labor supply -- have had a manifest bearing on Soviet policy affecting military manpower, and they are likely to have a continuing influence in the future. The effects of the low wartime birth rates on the manpower available for military service and the probable effects of the increasingly keen competition for skilled manpower that is being generated by the civilian economy are analyzed below. ☐

A. Effects of Low Birth Rates on Military Conscription

The low point in birth rates during World War II occurred in 1943, when the level of births fell to about 45 percent of that of 1939. The effect of this drop on the numbers of males becoming eligible for military service is shown in Table 1.* Although the decline in the number of men is considerable, it is not as serious as was previously believed, and the pattern of decline is different. The low point was reached in 1943 rather than in 1944 or 1945 as had been estimated. The decline in the number of men available for military service is still of importance, however, in view of the fact that in the mid-1950's annual conscript classes totaled about 1 million to 1.5 million men. ☐

Normally the maximum proportion of men available for conscription from an age group is about 75 to 80 percent. The remainder are unavailable because of exemption, deferment, and such other factors as labor commitments and influence. As shown in Table 1, after deductions for those unavailable, the supply of potential conscripts in 1962 may have been as small as one-half of the requirements of the mid-1950's.

* P. 7, below.

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Table 1

Soviet Males Reaching Conscription Age a/
1959-65

Year	Thousand Persons	
	Males Reaching Age 19 During the Year <u>b/</u>	Males Available for Con- scription <u>c/</u>
1959	2,040	1,530 to 1,630
1960	1,850	1,390 to 1,480
1961	1,220	920 to 980
1962	920	690 to 740
1963	1,040	780 to 830
1964	1,260	940 to 1,010
1965	1,580	1,180 to 1,260

a. Until June 1962, Soviet males became liable for conscription at age 19, except for general secondary school graduates who could be taken at age 18. In June 1962 the law was amended to make all males eligible for induction at age 18. As yet, however, the USSR has continued to rely on men 19 years of age for the largest part of its conscript classes. Men 18, 20, and 21 years of age continue to comprise the remainder, as in the past.

b. From unpublished data compiled by the Foreign Demographic Division, Bureau of the Census, as of 1 January 1964.

c. About 75 to 80 percent of an age group is estimated to be available for conscription.

By 1959, however, the number of men in the military and security forces had been reduced by successive cuts since the Korean War period to the estimated level shown in Table 2.* At the level estimated for mid-1959, about 2.96 million conscripts would have been in service. Because conscripts, other than those in the Navy, normally serve terms of 3 years,

* P. 8, below.

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Table 2

Number of Soviet Conscripts
Implied by the Estimated Force Levels a/
1959-64

<u>Thousand Persons</u>		
<u>Midyear</u>	<u>Force Level</u>	<u>Conscripts <u>b/</u></u>
1959	3,950	2,960
1960	3,550	2,660
1961	3,225	2,420
1962	3,525	2,640
1963	3,525	2,640
1964	3,525	2,640

a. Military and security forces.

b. Conscripts normally comprise about 75 percent of the combined Soviet military and security forces. A constant relationship of 75 percent conscripts and 25 percent cadre is assumed in this contribution, although during periods of variation in force levels the ratios may be altered temporarily.

major class sizes of about 990,000 men are implied by the figure of 2.96 million. However, the USSR uses varying sizes of conscript classes as one means of changing the level of the military and security forces. In view of the reductions probably accomplished in 1957 and 1958, the numbers of men in the conscript classes in mid-1959 were approximately as follows:

<u>Year of Service</u>	<u>Class Year</u>	<u>Thousand Persons</u>
First	1958	880
Second	1957	870
Third	1956	1,060
Fourth	1955	150
Total		<u>2,960</u>

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As shown in Table 2, further reductions in the force levels are estimated to have taken place by mid-1960 and mid-1961, with an increase by mid-1962. A plateau at the mid-1962 level is estimated for mid-1963 and mid-1964. Given the distribution of conscript classes that existed in mid-1959, the estimated force levels would have required conscription of classes in the numbers shown in Table 3.

Table 3

Annual Requirements for Soviet Conscripts
Implied by Estimated Force Levels
1959-64

<u>Year</u>	<u>Thousand Persons</u>
1959	760
1960	680
1961	1,100
1962	760
1963	680
1964	1,100

Most Soviet conscripts are inducted at age 19. As shown in Table 1, the number of men aged 19 in 1961 and in 1962 probably was insufficient to satisfy the requirements for conscripts at the estimated force levels and may be insufficient in 1964 if no reduction has been initiated. The total shortage for 1961 and 1962 as shown by our data probably was the range of about 150,000 to 250,000. The number of men available in 1959 and 1960 greatly exceeded the requirements estimated for those years, however, and the deficit in 1961 and 1962 could have

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been overcome easily by conscripting men aged 20 and 21 who had not previously been in service. In fact, the surpluses over requirements in the years 1959 and 1960 could have provided conscripts in sufficient number to have maintained the military and security forces at the estimated mid-1959 levels through the years mid-1960 to mid-1964. In our judgment, therefore, the impact on the conscription system of the decline in birth rates during World War II was not sufficient reason alone for the USSR to have reduced its military force level below that of mid-1959. ☐

Some pressure on the conscription system was noted in mid-1962, when the USSR appeared ready to induct men 18 years of age during the following year. Evidence shows that, although begun, induction of this group in 1963 was stopped before the processing was complete. Instead, requirements evidently were met by reducing the number of men deferred from the 19-year-old group. Assuming that our estimates of the force levels are approximately correct, these moves would have been unnecessary unless the number of men available for conscription was less than that shown in Table 1. ☐

Should the USSR wish to reduce the level of military manpower, however, 1964 is believed to be a most advantageous year. The ratios between the number of men in the conscript classes now in service are quite uneven. More than 40 percent of the conscripts are in the class of 1961, which is being replaced in 1964. The USSR is believed to prefer that about one-third of the conscripts be in each of the three

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major classes in service. By conscripting fewer men in 1964, the USSR could achieve a better balance between the conscript classes and at the same time carry out a reduction in force. In addition, replacement of the large class of 1961 by an equal number in 1964 probably would require more men than are estimated to be available for conscription from the 1945 age group. Although the deficit could be made up by conscripting men 18, 23, or 24 years of age, Soviet actions in 1963 show that Soviet officials are reluctant to do so at this time. This reluctance probably is associated to a considerable degree with the competition for young skilled workers discussed below. The reduction in the number of conscripts taken in 1964 that would achieve a balance in the classes in service would be on the order of 500,000 men. A reduction of this size probably will not occur, but a substantial cut is possible. ☐

B. Effects of Low Birth Rates on the Civilian Labor Supply

The impact of the low birth rates of World War II on the supply of labor in the USSR began to be felt in 1957-58. At this time the USSR took several measures to increase the participation rates of the groups making up the labor supply. These measures included "anti-parasite" laws, changes in the educational system, and a campaign to induce housewives to enter the labor force. The result of these measures was an increase in the labor force during the years 1958-63 greater than occurred during the preceding 5-year period, in spite of the slower growth of the labor supply. Therefore, reductions in the

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military forces as a source of civilian manpower, although desirable, were not "mandatory." ☐

Nevertheless, the requirement for civilian labor was a factor contributing to the decision to reduce the military force in 1960. Soviet officials could not have been certain of the ultimate level of success to be achieved in their campaign to increase labor participation rates, and a reduction of 1.2 million men in the military forces would have provided an important annual increment during each of 2 critical years, 1960 and 1961. Also of importance is the fact that men of the age for military conscription are "prime" labor, higher in quality than the marginal workers acquired by government "persuasion." ☐

In sheer numbers, military manpower is a very small part of the total labor force. Total civilian employment in the USSR in 1963 is estimated to have been more than 110 million persons. The primary impact of the military manpower requirements is not so much the number of men included in the armed forces as it is the growing number of skilled workers and technicians necessary to the military establishment to operate its rapidly growing inventory of complex weapons systems. The nature of the equipment being operated and maintained by the Soviet armed forces has changed drastically over the last 10 to 15 years. Not only have totally new weapons systems like guided missiles and nuclear submarines been introduced in large numbers, but also much of the equipment of the "conventional forces" has increased markedly in complexity. These developments have increased the military demands for

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trained men, who also are sorely needed in the civilian economy. The reductions in military manpower made in the 1950's were largely at the expense of infantry units. Cuts in the 1960's are likely to affect skilled manpower as well. ☐

Thus reductions in the military forces may be of even greater value to the labor force after 1963. The Soviet government has achieved about the maximum labor participation rate possible through present measures. Additional measures are likely to be of little assistance; future increases, therefore, will be only a function of population growth. Of more importance is the difficulty caused to industry by the present emphasis on agricultural production and the accompanying inducements provided agricultural labor. Soviet industry traditionally has tapped agriculture as a source of additional workers. This supply is being reduced at a time when military requirements for technically trained conscripts increasingly conflict with the interests of industry. ☐

III. Tactical Missile Systems

Since the end of World War II the USSR has developed, produced, and deployed a number of short-range ballistic and cruise guided missile systems as well as free-rocket-over-ground (FROG) systems for the tactical support of ground force operations. The acquisition of nuclear weapons by the ground forces has been one of the major factors affecting the development of Soviet theater warfare capabilities over the past few years. Soviet military publications make it clear that nuclear

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weapons and tactical missiles now constitute the "main firepower" of the ground forces.

A. Offensive System

Tactical missile systems currently deployed in the Soviet operational inventory include several models of the short-range, solid-propellant FROG; two models of the Scud ballistic missile (80 and 150 nautical miles -- nm); and the 300-nm-range cruise missile Shaddock. Information acquired since the publication of NIE 11-14-63 indicates that a new model of the FROG has begun to appear with Soviet forces in East Germany and that a new 150-nm ballistic missile may be under development. A possible decline in the deployment of the Scud system indicated by the lower rate of training firings over the past year may be related to this development. The Scud missiles are expected to remain in the inventory through mid-1970, however, because a follow-on system could not be ready for operational deployment before 1966 at the earliest. (For the estimated deployment of Soviet tactical missiles, 1957-64, see Table 4.)

1. Current Models

Initial deployment of the first Scud missile to carry a nuclear warhead (SS-1b, 80 nm) is believed to have taken place in 1958. The ultimate level of deployment of this 80-nm missile probably was reached by the end of 1960, when 55 to 65 launchers, organized into 9 to 11 missile brigades, could have been in the field. Although a phaseout of this system was expected in 1963, the level of training

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Table 4

Estimated Number of Soviet Tactical Missile Launchers a/
1957-64

	1957		1958		1959		1960		1961		1962		1963		1964		Units
	Midyear	End of Year	Midyear	End of Year	Midyear	End of Year	Midyear	End of Year	Midyear	End of Year	Midyear	End of Year	Midyear	End of Year	Midyear	End of Year	
Ballistic Missiles																	
SS-1b																	
Scud (conventional) (150 mm)	0	0 to 5	0 to 10	10 to 20	15 to 30	20 to 35	25 to 45	45 to 55	50 to 60	45 to 60	30 to 60	10 to 50	0 to 25	0 to 10	0 to 10	0 to 10	
Scud (nuclear) (60 mm)				5 to 10	10 to 20	30 to 45	40 to 65	55 to 65	55 to 65	55 to 65	55 to 65	55 to 65	55 to 65	50 to 65	35 to 60	35 to 60	
SS-1c																	
Scud-8K14										10 to 20	15 to 35	25 to 45	30 to 50	25 to 50	15 to 3		
Cruise Missiles																	
SS-C-1																	
Shaddock SS-500								0 to 5	5 to 10	10 to 20	15 to 25	25 to 30	50 to 55	60 to 65	60 to 65	60 to 65	

a. These estimates are based on an analysis of the launch programs conducted at the Kapustin Yar Missile Test Range. The low estimates represent firm identifications of training launches, and the high estimates include possible training launches as well as firm identifications. Ranges of 24 to 36 months are assumed to be the length of time that the various missile systems remain in the inventory following the last identified training exercise. The data set forth in the IAP for deployment from 1957-1959 through 1964-1965 remain consistent with the information available.

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activity indicated by test-range data suggests that the level of deployment reached in 1960 was maintained at least through mid-1963. []

An improved Scud missile with a range of 150 nm and equipped to deliver a nuclear warhead (SS-1c) was first deployed in 1961. After normal program growth through 1962, test-range training launchings attributable to the SS-1c appear to have almost stopped in the first half of 1963. Indeed, all launchings on the 150-nm range of the Kapustin Yar Missile Test Range fell off very sharply, although other activities remained at normal levels. As yet, only about half of the expected number of training launches have occurred this year. Most of the 1964 autumn training period remains, however, and the 15 to 25 launchings required to maintain the SS-1c program at its mid-1963 level could be performed before the end of the year. Alternatively the launchers that were operational in mid-1963 could be kept in the field without re-training for the launch crews. The efficiency of the launch crews would decline, however, because experienced crew members would be upheld with conscripts and young officers who had not participated in live firings. []

The USSR has allocated to the Shaddock (SS-C-1) the long-range tactical missile mission. This 300-nm cruise missile was first deployed by the end of 1960, and by 1963 it was apparent that the Shaddock was to be the sole current replacement for the 300-nm ballistic missile Sibling (SS 2), which is no longer in the operational inventory. Launchings indicate that by the end of 1963 from 60 to 65

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launchers could have been deployed. The estimated rate of deployment probably will be maintained until a system comparable to that of the US Pershing has been developed.

Soviet line divisions in East Germany received a new FROG system in 1963 that has a truck-mounted rail launcher and a missile somewhat smaller than the FROG 3/4. Technical evaluation of this missile has not been completed, but the range of the new FROG might be less than the 19 to 21.5 nm estimated for the FROG 3/4. Because of the pattern of deployment in the Group of Soviet Forces, Germany (GSFG), the new FROG probably is a supplement to the FROG 3/4 rather than a replacement.

2. Tactical Missiles Under Development

Current systems of Soviet tactical ballistic missiles do not represent satisfactory solutions to the requirements of the ground forces when measured against the level of current missile technology. Soviet military writings indicate that response times are too long, and the mobility of the support systems is unsatisfactory. Therefore, the development of a replacement for the Scud-type systems has been expected. It now appears that a new 150-nm system is being tested. A series of six launchings in June and July 1964 resembles the group of feasibility tests conducted for the SS-1c missile from December 1959 to February 1960. If general systems tests are detected in the spring of 1965, a heavy training schedule of launchings would be expected in 1966, with

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the first replacement of the Scud 1-b and 1-c systems occurring late in the same year.

3. Levels of Deployment Through 1970

The programs assumed for tactical missiles and FROG's for the years 1964-70 in the Intelligence Assumptions for Planning (IAP) appear to be valid. The uncertainties as to the meaning of the changing patterns of evidence relative to the Scud-type systems would make changes in the estimated programs premature at this time. Clarification of the status of the Scuds is not expected before the end of the year, at the conclusion of the second regular training period for tactical missile crews. As stated above, if general systems tests of a follow-on to the Scud-type systems occur in the spring of 1964, deployment may result in 1966, a year earlier than forecast in the IAP.

The outcome of the reorganization of the FROG units in the Soviet line divisions is similarly uncertain at this time. The IAP provides for an increase to three launchers per division, the probable minimum to be expected. The capabilities of the new truck-mounted launcher seen in East Germany are not known. Information indicating the incorporation of this launcher into line divisions that also have received additional FROG 3/4's could indicate that the number of launchers assigned to line divisions could be raised to six. Further evidence must be acquired, however, before estimates of more than three launchers per division will be warranted.

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B. Defensive Systems

1. SA-2

The SA-2 system continues to be the only surface-to-air missile (SAM) system known to be deployed with the Soviet Ground Forces. Approximately 30 SA-2 SAM sites are located near important Soviet military installations in Eastern Europe. In the event of war, however, the units (battalions) occupying these sites probably would remain with rear-area, semifixed installations, as they lack the mobility to keep up with a moving army. Because of this system deficiency, the deployment of many additional SA-2 units with the tactical forces is not anticipated.

2. GANEF

A probable surface-to-air missile (GANEF) mounted on a tracked gun chassis was photographed at the Moscow May Day Parade in 1964. Analysis of this photography indicates that the missile has a medium-to-high altitude capability and a range of 25 to 30 nm. The system's low-altitude capability, however, has not been established. If the missile capabilities are in fact those suggested, and the radar components of the system have been made equally compact, the GANEF could provide a mobile SAM system with capabilities comparable to the SA-2 system. There is, however, no evidence which suggests that this system is now deployed, and no basis is available for estimating the extent to which it may be deployed.

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3. Requirement for a Low-Altitude Capability

The USSR, as indicated in its military documents, appreciates the requirement for a mobile, low-altitude SAM system that can be deployed with front-line troops. Nevertheless, the only SAM system to which technical analysis permits attributing a low-altitude capability is the SA-3, whose components (although mounted on wheels) are large and cumbersome (particularly the radar). As a result, rapid movement of the system is probably impossible. This immobility may account for its having been observed only at fixed sites in the USSR. Therefore, if the GANEF, as technical analysis suggests, is not a low-altitude system, a serious deficiency exists in the SAM defense capabilities of their ground forces. It follows that the USSR could be developing such a system, but there is no basis for predicting when it might become available.

4. Antitactical Ballistic Missile Developments

Statements in classified Soviet documents and attempts to intercept about 19 short-range missiles fired into the Sary Shagan Anti-ballistic Missile Test Center (SSATC) between 1960 and 1961 suggested an early interest in the development of an antitactical ballistic missile (ATBM) system. In addition, analysis of photography through 1963 covering Launch Area A at the SSATC suggested that Sites 1, 2, 3, and 4 might be ATBM R&D facilities -- primarily because, unlike the Leningrad prototypes at Sites 5 and 6, they lacked large structures,

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and a number of unidentified objects were noticed to have moved about on the launch positions.

The assessment that these sites might be ATBM launch facilities has, however, always been tenuous -- limited primarily to the area of mobility previously noted and an assumption that the antimissile missile (AMM) launches between 1960 and 1961 (very possibly conducted from Sites 1 and 2) were ATBM-related rather than the beginnings of an ABM R&D program. In any case, the AMM's could not have been fired from Sites 3 and 4, because these sites were still under construction in October 1961, the last month in which short-range missile firings into the SSATC were detected. Moreover, in 1964, Launch Position 5 at Site 3 was enlarged and revetted, causing it to resemble in size and appearance the revetted launch positions at the probable long-range SAM sites located at Talinn and Cherepovets.

The evidence regarding the status of any Soviet ATBM R&D effort, therefore, remains highly tenuous. Some sort of ATBM program could be underway at Sites 1 and 2, and the activity at Sites 3 and 4 could represent a mixed ATBM/long-range SAM effort. It appears at least as possible, however, that the observed activity at Launch Complex A (and at Sary Shagan as a whole) has involved a steady progression of events in an ABM development program which evolved into the Leningrad and Moscow systems. Finally, considering the difficulties that the USSR appears to have encountered in developing mobile SAM systems and considering the more difficult packaging problems involved

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in developing a transportable ATBM system (particularly that of reducing the size of the electronics components to manageable proportions), it is doubted that an ATBM system will be developed in the near future that would warrant wide deployment during the period of this estimate.

If the foregoing reservations are valid, the only present Soviet ATBM capability is represented by the SA-2 system, which is estimated to have a limited, inherent capability against short-range (100-nm or less) tactical missiles. The system's lack of mobility, however, its inability to engage more than two targets simultaneously, its radar range limitations (versus target velocity), and its slow system-reaction time rule out such a combat role except on a fortuitous basis.*

In sum, the USSR does not have any capability to defend its field forces against attack by tactical ballistic missiles, and it is not anticipated that the USSR will soon acquire such a capability.

IV. Soviet Tactical Air Force and Satellite National Air Forces

Following a drastic reduction of Soviet aircraft strength in connection with Khrushchev's cutback of conventional military forces in 1960, the size of the Soviet Tactical Air Force (TAF) has leveled off at about 3,100 to 3,400 aircraft. Current replacement rates and an assessment of Soviet requirements suggest that the size of the air force is now relatively stable (see Table 5) and that it will decline only moderately during the course of this estimate. Although newer

* Technical analysis of the latest observed system modifications to the radar and missile does not suggest that the ATBM capability has been improved.

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Table 5

Estimated Air Order of Battle of the Soviet Tactical Air Force g/
Mid-1959 to Mid-1970

	Mid-1959	Mid-1960	Mid-1961	Mid-1962	Mid-1963 b/	Mid-1964	Mid-1965	Mid-1966	Mid-1967	Mid-1968	Mid-1969	Mid-1970
Interceptors c/	4,170 to 4,790	2,810 to 3,160	2,360 to 2,565	2,270 to 2,480	2,295 to 2,475	2,385 to 2,485	2,350 to 2,475	2,250 to 2,425	2,100 to 2,325	1,900 to 2,225	1,750 to 2,225	1,675 to 2,200
Old	4,170 to 4,790	2,775 to 3,095	2,140 to 2,305	1,875 to 2,045	1,680 to 1,800	1,445 to 1,435	1,150 to 925	975 to 775	800 to 500	575 to 325	400 to 200	300 to 100
Fagot	1,100 to 1,500	500 to 600	300 to 325	200 to 225	180 to 200	180 to 75	50 to 25	0	0	0	0	0
Flashlight c/	120 to 140	65 to 85	65 to 80	65 to 85	55 to 65	30 to 35	0	0	0	0	0	0
Fresco c/	2,550 to 2,700	2,000 to 2,150	1,600 to 1,675	1,300 to 1,375	1,200 to 1,275	1,025 to 1,100	900 to 750	800 to 650	650 to 400	450 to 250	300 to 150	225 to 75
Farmer c/	400 to 450	210 to 260	175 to 225	310 to 360	245 to 260	210 to 225	200 to 150	175 to 125	150 to 100	125 to 75	100 to 50	75 to 25
Current	0	35 to 65	220 to 260	395 to 435	615 to 675	940 to 1,050	1,200 to 1,550	1,275 to 1,650	1,300 to 1,825	1,325 to 1,900	1,350 to 2,025	1,375 to 2,100
Fishbed c/ExD c/	0	25 to 50	160 to 180	260 to 280	370 to 400	550 to 620	700 to 900	725 to 950	750 to 975	725 to 950	725 to 950	725 to 950
Fitter	0	10 to 15	60 to 80	135 to 155	245 to 275	390 to 430	500 to 650	550 to 700	550 to 750	550 to 750	525 to 700	500 to 700
TF-67	0	0	0	0	0	0	0	0	0 to 100	50 to 200	100 to 375	150 to 450
Reconnaissance/Fighters	80 to 125	180 to 250	190 to 245	190 to 240	190 to 245	180 to 245	200 to 200	150 to 200	200 to 250	200 to 250	175 to 225	150 to 200
Fagot/Fresco	75 to 125	105 to 150	95 to 135	90 to 125	90 to 125	80 to 125	75 to 25	0	0	0	0	0
Mangrove	5 to 10	75 to 100	95 to 110	100 to 115	100 to 120	100 to 120	25 to 50	100 to 125	100 to 125	75 to 100	50 to 75	25 to 50
Fishbed	0	0	0	0	0	0	25 to 50	50 to 75	100 to 125	125 to 150	125 to 150	125 to 150
Reconnaissance/Bombers	0	0	0	0	0	250 to 265	175 to 200	100 to 75	100 to 50	0	0	0
Beagle	0	0	0	0	0	325 to 345	250 to 350	375 to 475	325 to 400	375 to 500	350 to 475	325 to 475
Bombers	2,750 to 2,850	955 to 1,025	665 to 710	635 to 670	615 to 660	325 to 345	250 to 350	375 to 475	325 to 400	375 to 500	350 to 475	325 to 475
Badger	50 to 100	90 to 100	0	0	0	0	0	0	0	0	0	0
Beagle	2,700 to 2,750	875 to 925	665 to 710	605 to 630	575 to 600	250 to 260	100 to 125	100 to 75	0	0	0	0
Brewer	0	0	0	30 to 40	40 to 60	75 to 85	150 to 225	275 to 400	325 to 400	375 to 500	350 to 475	325 to 475
Total aircraft (rounded)	7,000 to 7,800	4,000 to 4,400	3,200 to 3,500	3,100 to 3,400	3,100 to 3,400	3,100 to 3,400	3,000 to 3,200	2,900 to 3,200	2,700 to 3,000	2,500 to 3,000	2,300 to 2,900	2,200 to 2,900

As of mid-1965 the number of current types of interceptor and reconnaissance aircraft could equal or exceed the number of older aircraft. Therefore, in estimating the total number of interceptor aircraft, the highs and lows of old aircraft were added to the lows and highs of new aircraft to reflect the fact that in a relatively stable force the rate at which old aircraft are withdrawn will be dependent on the rate at which new aircraft are introduced.

The figures through mid-1963 represent a position agreed on by the Ad Hoc Committee of the Intelligence Community on Tactical Aviation.

The Flashlight and certain models of all the other types are all-weather aircraft.

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aircraft are now replacing older models at a ratio of almost one-for-one, deficiencies in the composition and quality of the force continue to be evident. A modern multipurpose attack plane for close support of ground troops is still missing from the inventory, all-weather interceptors still constitute only a small part of the fighter force, and reconnaissance capabilities appear to fall below Soviet requirements. The national air forces of the European Satellites add some 2,500 to 2,700 aircraft of all types to the airpower potentially available to the USSR, although the capabilities of these forces vary widely and in no case measure up to Soviet standards. The replacement of older by newer models of aircraft is proceeding slowly in the Satellite air forces, and it is expected that these forces will consist largely of older generation aircraft throughout the course of this estimate (see Table 6*).

A. Soviet Tactical Air Force

1. Mission and Organization

Although the Soviet Tactical Air Force (TAF) appears to have lost some of its functions to the tactical missile forces as a result of the weapons revolution of recent years, the role of tactical aviation in theater warfare operations is still broad and varied. This role includes bombing and air-to-surface missile strikes against enemy theater force targets, close support of ground and airborne operations, air intercept missions, and reconnaissance. As indicated

* P. 26, below.

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Table 6

Estimated Air Order of Battle of the European Satellite National Air Force
Mid-1964 to Mid-1970

	Mid-1964	Mid-1965	Mid-1966	Mid-1967	Mid-1968	Mid-1969	Mid-1970
Interceptors	2,395 to 2,535	2,220 to 2,425	2,050 to 2,375	1,825 to 2,250	1,715 to 2,110	1,675 to 2,125	1,625 to 2,100
Old	2,155 to 2,275	1,875 to 2,050	1,600 to 1,850	1,300 to 1,600	1,050 to 1,275	900 to 1,150	750 to 1,025
Flashlight	10 to 15	0	0	0	0	0	0
Fagot	425 to 450	300 to 350	150 to 250	50 to 150	0 to 25	0	0
Farmer	375 to 425	350 to 400	300 to 350	200 to 300	100 to 200	50 to 150	0 to 125
Fresco	1,345 to 1,385	1,225 to 1,300	1,150 to 1,250	1,050 to 1,150	950 to 1,050	850 to 1,000	750 to 900
Current	240 to 260	325 to 375	450 to 525	525 to 650	665 to 835	775 to 975	875 to 1,075
Fishbed	240 to 260	300 to 325	350 to 400	400 to 500	500 to 600	600 to 700	650 to 750
Fitter	0	25 to 50	100 to 125	125 to 150	150 to 200	150 to 200	150 to 200
Fishpot a/ TF-67	0	0	0	0	15 to 35	25 to 50	50 to 75
Bombers	125 to 145	100 to 125	80 to 110	50 to 125	60 to 165	75 to 125	75 to 125
Beagle Brewer	125 to 145	100 to 125	75 to 100	25 to 75	10 to 65	0	0
Reconnaissance Fighters	0	0	5 to 10	25 to 50	50 to 100	75 to 125	75 to 125
Mangrove	5 to 15	25 to 40	40 to 60	50 to 75	60 to 85	75 to 100	100 to 125
Total aircraft (rounded)	2,500 to 2,700	2,300 to 2,600	2,200 to 2,500	1,900 to 2,400	1,800 to 2,400	1,800 to 2,400	1,800 to 2,400

a. The Fishpot may enter the Satellite forces by mid-1966, if the USSR chooses to begin phasing it out of its PVO forces at that time. It is more probable, however, that in order to hold the PVO forces relatively stable, the USSR will retain these aircraft in the PVO AOB through mid-1968.

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above, Soviet military publications have been giving increased emphasis to the potential contribution of tactical aviation to theater warfare operations. []

The Soviet Tactical Air Force is administratively subordinate to Headquarters Soviet Air Forces, Moscow, and operationally subordinate to the commanders of military districts (MD's) and tactical air armies. In wartime, operational control would be vested in the theater commander. []

TAF units are located throughout the USSR, in East Germany, Poland, and Hungary. In the forward areas (the groups of forces outside the USSR and the peripheral military districts in the USSR) the TAF units are known as tactical air armies (TAA's). In the interior areas of the USSR, where there is no requirement for a full tactical air army, there are smaller elements known as air forces of military districts. []

A reexamination of [] information concerning the tactical air order of battle undertaken over the past year indicates that a drastic reduction and reorganization of the Soviet Tactical Air Force took place from April through June 1960. Changes in organizational structure [] indicated that the tactical air organizations in both the Northern and the Leningrad MD's were placed under the operational control of the 13th TAA and that elements of the 22nd TAA were transferred or deactivated. It appears also that at least some tactical fighter elements in the interior and

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in the Far Eastern military districts were resubordinated to the air defense forces (IAPVO).

In general, the reorganization reduced the strength of the TAA's in the Far Eastern and interior military districts but possibly increased the strength of the TAA's located in the eastern peripheral military districts and in eastern Europe. Since the reorganization, however, there have been no significant changes in the organizational structure of the Tactical Air Force or in the relationships among the force levels of the TAA's.

Together with these sweeping organizational changes, there was a drastic reduction in the number of aircraft subordinated to the Tactical Air Force. Within a 3-month period, April-June 1960, tactical air elements were decreased by almost 45 percent -- reducing the force from about 7,400 aircraft to approximately 4,200 aircraft. Particularly sharp reductions were made in the number of Fagot (MIG-15) jet fighters and Beagle (Il-28) light jet bombers.

Between mid-1960 and mid-1961, tactical air elements were again reduced, although far less drastically than had been the case in the second quarter of 1960. In the period between mid-1961 and mid-1962 a very slight decrease of approximately 100 aircraft was noted in total tactical aviation.

Since 1961, many of the older aircraft (Fagot, Fresco, Farmer, Flashlight, and Beagle) have been replaced by current types (Fishbed D, Fitter, Flashlight D, and Brewer), and since 1962 this

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replacement program has been proceeding at almost a one-for-one ratio.

Because [] indicate that there has been little change in the force in the last year, it is believed that the total number of aircraft in the TAF has remained at approximately 3,100 to 3,400 since the 1961-62 period. []

2. Developments Through Mid-1970

The relative stability that has been observed in Soviet Tactical Air Force strength over the past several years suggests that the current air order of battle corresponds closely to Soviet requirements for tactical aviation. Because no radical changes in Soviet requirements over the next several years are foreseen, it is expected that current force trends will continue, and only a moderate decline in over-all strength is anticipated during the course of this estimate. The estimated production rates of new aircraft appear compatible with this forecast. It is therefore estimated that the total strength of the Soviet Tactical Air Force in mid-1970 will range between 2,200 and 2,900 aircraft. These figures could be somewhat higher if, as seems possible, the USSR anticipates a requirement for a larger reconnaissance force than projected in this estimate. []

With respect to the composition of the force, it is anticipated that the replacement of older aircraft in each component with current types will continue. Since mid-1963, approximately 400 advanced model fighters and bombers (Fishbed D, Fitter, and Brewer) have entered Soviet units, and, based on estimated production rates, it is believed

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[] []
that these aircraft will continue to enter the force at approximately the same rate through mid-1967. Beginning in the 1967-68 time period, it is anticipated that a new, multipurpose (ground support/interceptor) tactical aircraft will be deployed. []

As noted above, current Soviet aircraft assigned to a ground-support role were designed primarily for air intercept missions and consequently have poor load-carrying and range capabilities. They are, however, supersonic and therefore capable of toss-bombing and delivering nuclear weapons at low levels. []

As regards the secondary mission of tactical aviation -- air defense -- the Fishbed D is equipped with SPIN SCAN Airborne Intercept (AI) equipment. As such, it is an all-weather fighter rather than a clear-air-mass interceptor. The vast majority of older model interceptors in the Tactical Air Force are of the latter type. The deployment to operational units of the Fishbed D has enhanced the all-weather air defense capabilities of Soviet tactical elements and by mid-1970 will greatly enhance that capability. (TSD)

During the past year [] PVO aircraft have been conducting what appear to be ground support exercises. This observation, coupled with the above-noted enhancement of the TAF's all-weather intercept capabilities, suggests an increasing development of dual capabilities in both force components. At any rate, it is clear that the TAF and PVO perform overlapping functions, and that they are to a considerable degree complementary. (TSD)

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B. Satellite Air Forces

The primary mission of the Satellite air forces is air defense, but because they also have a tactical support capability, they must be considered in assessing over-all Soviet capabilities for theater operations. These forces are subject to the unified military command established by the Warsaw Pact and in wartime would be under the ultimate control of the Soviet High Command. []

A reexamination of all the evidence available concerning the number of aircraft in the Satellite air forces confirms the validity of the over-all force levels for mid-1964 estimated in NIE 11-14-63. It is believed that these over-all force levels will decline only slightly by mid-1970. []

[] indicates that the number of new-generation aircraft added to the operational inventory during the past year is considerably smaller than anticipated. Although the Fitter has been received recently by the national air forces of Poland and Czechoslovakia, it is believed that as of midyear this aircraft probably was still in training units and had not entered operational service. The Mangrove and the Fishbed D have been deployed only in very limited numbers. The Fishbed C/E is the only new-generation aircraft that has entered the operational inventories of the Satellite air forces in any appreciable numbers. These observations suggest that the replacement rate will continue to be slow, given the priorities enjoyed by the Soviet air force. It is now estimated that by mid-1970 approximately

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40 to 50 percent of the total number of aircraft in the Satellite air forces will still consist of older generation models and that only from one-third to one-half of the total will consist of all-weather aircraft. Nevertheless, this total will significantly enhance the all-weather air defense capabilities of these forces. Moreover, this increment of new models through mid-1970, which it is estimated, will total some 600 to 800 aircraft, will add substantially to over-all Soviet capabilities for theater warfare. ☐

V. Soviet Naval General-Purpose Forces

Traditional missions such as interdicting Western sea lines of communication, defending the littoral of the Soviet Bloc, and providing support for the seaward flanks of ground forces have been retained by the Soviet Navy, as its missions have been expanded during recent years to include operations against Western carrier and Polaris forces. Increasing the range and the effectiveness with which the Soviet naval forces could counter this Western threat has resulted in a diversification of naval forces. ☐

In spite of the recent establishment in the Baltic of a brigade-size Soviet "marine corps," there is little evidence of the development of a significant amphibious capability. Few specially designed amphibious assault ships are available, and there is no known construction program for them. Although the USSR has a large, modern, and rapidly growing merchant fleet, the use of merchant ships for support operations would require good harbor facilities. The ability of the

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Soviet Navy to protect the sea lines of communication so vital to amphibious operations is severely limited and extends for only short distances. Rear Admiral Bogolepov, writing in December 1961, in a classified Soviet journal, comments on amphibious operations as follows:

Surface transport is entirely feasible but requires the support of forces that are superior to those of the enemy. What kind of forces? At present, with the inadequate range of aircraft -- mainly surface means. Calculations show that if we wanted to we could create such forces no earlier than 15 to 20 years from now, and this is clearly useless.

The creation of a small "marine corps" seems to indicate a Soviet requirement for forces specially trained for limited beach assault or sabotage activities rather than an intention to expand sealift and amphibious operations to a significant degree. (TSD)

Current naval programs reflect the continuing emphasis on the primary mission of defense against carrier task forces and missile submarines. These programs portray the effort to extend and improve operational capabilities in areas beyond Soviet coastal waters.

A. Current Size and Production

1. Submarine Force

The Soviet submarine force is currently estimated at about 370 ships (see Table 7*). It consists of 22 to 26 nuclear submarines, 320 first-line diesel submarines, and 22 second-line diesel submarines.

* P. 34, below.

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Table 7

Estimated Soviet Naval Strength and Deployment
Excluding Ballistic-Missile Submarines a/
Selected Periods, 1964 to Mid-1970

	By Fleet as of Oct 1964						Unit
	North	Baltic	Black Sea	Pacific	Total		
Nuclear Submarines	13 to 17	0	0	2	22 to 26	33	Mid-1966
E Mod I (Cruise)	0	0	0	6	6	6	Mid-1968
E Mod II (Cruise)	3 to 5	0	0	2	5 to 7	11	Mid-1970
N Torpedo	10 to 12	0	0	1	11 to 13	16	
Diesel Submarines (1st Line)	130	72	45	72	320	313 to 316	
Long-range J (Cruise)	2	0	4	0	6	10 to 12	
Long-range W Mod (Cruise)	6	0	1	3	12	12	
Long-range F and follow-on (Torpedo)	23	4	0	8	35	39 to 40	
Long-range Z (Torpedo)	11	3	0	5	19	19	
Long-range R (Torpedo)	15	2	3	0	20	20	
Long-range W (Torpedo)	71	33	26	44	174	174	
Medium-range Q (Torpedo)	0	26	4	0	30	30	
Short-range N (Torpedo)	0	4	7	13	24	9	
Diesel Submarines (2nd Line) b/	0	11	2	6	22	37	
Surface Ships (1st Line)	158 to 168	304 to 324	259 to 270	260 to 299	1,010 to 1,061	1,011 to 1,064	
Cruiser G/	3	4	5	4	16	16	
Destroyers (SAM)	0	2	3	0	5	7 to 9	
Destroyers (SSM)	5	4	4	3	16	16	
Destroyers	25	18	15	25	83	82	
Escorts (SAM)	0	0	2 to 3	0	2 to 3	4 to 5	
Escorts	20	11	10	17	58	56	
Guided-missile motorboats	15	35	30	50	130	130	
Patrol craft	90 to 100	230 to 250	190 to 200	190 to 200	700 to 750	700 to 750	
Surface Ships (2nd Line) b/	0	1	2	2	5	1	

a. Excluding mine warfare, auxiliaries, amphibious, and other supporting craft.

b. The second-line submarine category lists units from 14 to 20 years old. Some of the older W, R, Q, and M class units may be relegated to second-line status or be scrapped earlier than on an age basis in order to maintain the personnel level and the adequacy of logistic support. Others, however, may be retained in operational status beyond the arbitrary age limit. Surface ships that are at least 20 years old are carried in a second-line status until there is evidence of their removal from the fleet or until they are finally considered removed when 25 years old.

c. Including two Sverdlov class in the Black Sea fitted for missile R & D.

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It is estimated that the force will consist of about 400 units throughout the period of this estimate. []

The construction of new submarines is divided between cruise-missile and torpedo-attack types in roughly equal portions (see Table 8*). Cruise-missile submarines probably are being built at three or four shipyards: the nuclear-powered E-class (Mod II) at Komsomol'sk in the Far East and Severodvinsk in the Northern Fleet area for a combined delivery rate of 3 to 4 units per year during the next several years and the diesel-powered J-class at Sudomekh in Leningrad and probably at the shipyard in Gor'kiy for a combined delivery rate of 4 to 6 units per year. The estimated production of the J-class submarines at Gor'kiy is based on sightings of probable J-class units in the Black Sea in late 1963. There also is tenuous evidence that in late 1962 or early 1963 Komsomol'sk may have begun production of a diesel submarine, either J class or F-class. The involvement of more than one shipyard indicates a considerably larger J-class program than was previously estimated. []

Estimated production of torpedo-attack submarines consists of about three units per year of the nuclear-powered N-class, built at Severodvinsk, and the diesel-powered F-class program is expected to taper off. In Table 8, estimates for both of these classes are augmented to include possible follow-on models. []

* P. 36, below.

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Table 8

Estimated Annual Construction of Selected Soviet Naval Ships
Fiscal Years, 1965-70

	Fiscal Year 1965	Fiscal Year 1966	Fiscal Year 1967	Fiscal Year 1968	Fiscal Year 1969	Fiscal Year 1970	Cumulative Total Fiscal Year 1965-70	Uni
Submarines								
Nuclear cruise-missile (E Class Mod II)	3 to 4	3 to 4	3 to 4	0 to 3	0 to 3	0 to 3	9 to 21	
Nuclear torpedo-attack (N Class) <u>a/</u>	3 to 3	3 to 3	3 to 3	5 to 3	5 to 3	5 to 3	24 to 18	
Diesel cruise-missile (J Class)	4 to 6	4 to 6	2 to 4	2 to 2	0	0	12 to 18	
Diesel torpedo-attack (F Class) <u>a/</u>	4 to 5	3 to 3	4 to 5	5 to 6	5 to 6	5 to 6	26 to 31	
Surface Ships								
SAM destroyer (Kashin Class)	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	12 to 24	
SAM ocean escort (Unknown Class)	2 to 2	1 to 2	1 to 2	1 to 2	1 to 1	0	6 to 9	
Large subchaser (<u>Poti</u> Class)	7 to 12	7 to 12	7 to 12	7 to 12	7 to 12	7 to 12	42 to 72	

a. Including possible follow-on.

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2. Surface Forces

Naval surface forces are and will remain to a large extent heavily dependent on land-based logistic and air support during the period of this estimate. Nonmissile equipped major surface units now include 14 light cruisers, 83 destroyers, and 58 destroyer escorts. The USSR now has 16 operational destroyers armed with cruise-type surface-to-surface missiles. In addition, it is estimated that there are five SAM destroyers and two to three SAM escorts in an operational status. It is estimated that the numbers of these latter two classes of ships will increase threefold during the period of this estimate. Such a growth will contribute to an improvement in the effective range at which Soviet naval forces can operate from their home bases. ☐

In the surface ship construction programs, greater capabilities for antisubmarine warfare (ASW) and anti-air defenses are being emphasized. The Kynda class appears to have been replaced by the Kashin class, with double the SAM firepower. Expanded production of the Kashin class to an estimated rate of two to four units per year should improve gradually the Soviet capabilities to conduct ASW operations beyond the range of shore-based air cover. In addition to the Kashin-class program, it is estimated that a new SAM-equipped ocean escort is being built. The evidence concerning this latter class is inconclusive, but it could correspond to "Project No. 35" at the Nikolayev Shipyard 445. ☐

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Several smaller class programs also are of importance to Soviet ASW capabilities. Construction of the Poti-class subchaser is continuing at an estimated rate of 7 to 12 units per year, but production of the larger Petya-class subchaser probably has been terminated. The programs for guided-missile motorboats, both the Osa and Komar classes, apparently have continued in 1964, although construction of both classes probably will terminate in the near future. [REDACTED]

The large ship currently under construction at Nikolayev may contribute to an improvement in Soviet ASW capabilities. The configuration is unlike that of any other Soviet naval ship. The large expanse of deck space aft suggests a possible fast helicopter carrier. Such an addition to the ASW fleet would improve its submarine kill capability. Although some destroyers have been observed with helicopter platforms on the aft deck, the use of helicopters in ASW operations has been restricted to those based on shore. Limited evidence permits neither a firm categorization of this project nor an estimation of its construction schedule. [REDACTED]

In addition to the programs for line ships mentioned above, there are continuing programs for minesweepers and auxiliaries. The auxiliaries being constructed are highly specialized units, many of which are to serve as mobile basing units to support the submarine forces. [REDACTED]

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3. Naval Aviation

The Soviet Naval Aviation Force (SNAF) is composed largely of jet medium bombers but also includes jet light bombers, patrol aircraft, and helicopters (see Table 9*). About three-fourths of the 360 to 410 Badgers in the SNAF have an air-to-surface missile (ASM) capability. []

It is estimated that the medium-bomber component of the SNAF will decline only slightly through mid-1970 and that the introduction of the new Blinder will offset a reduction in the Badger reconnaissance force and the total phasing out of the Badger A (AS-1) force. Based on need and on at least one exercise suggestive of an ASM launch, it is estimated that most if not all of the Blinder aircraft will have an ASM capability. Lack of evidence that the ASM for the Blinder has been placed in operational use suggests that it is still under development, possibly at the Vladimirovka Missile Test Range. Because the Blinder has been deployed with SNAF units since 1963, it was estimated in the ORR contribution to NIE 11-14-63 that an ASM for it would be deployed by mid-1964. It is now estimated that this weapon could appear by mid-1965. If it does not, it would have to be assumed that the ASM development program is in difficulty, that the missile may have been deployed without our knowledge, or that the Blinder will not carry an ASM. []

* P. 40, below.

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Table 9

Estimated Air Order of Battle of the Soviet Naval Air Force a/
Mid-1964 to Mid-1970

	Mid-1964	Mid-1965	Mid-1966	Mid-1967	Mid-1968	Mid-1969	Mid-1970
Anticarrier force	400 to 460	380 to 460	350 to 440	340 to 410	330 to 400	290 to 390	300 to 370
Attack aircraft	260 to 290	240 to 290	220 to 290	220 to 270	220 to 270	190 to 270	210 to 260
Badger B (AS-1)	60 to 70	20 to 40	0 to 20	0	0	0	0
Badger C (AS-2)	200 to 220	220 to 240	220 to 240	200 to 220	190 to 210	150 to 200	170 to 190
Blinder B (ASM)	0	0 to 10	0 to 30	20 to 50	30 to 60	40 to 70	40 to 70
Reconnaissance aircraft	140 to 170	140 to 170	130 to 150	120 to 140	110 to 130	100 to 120	90 to 110
Badger A (recon/tnr)	100 to 120	100 to 120	90 to 100	80 to 90	70 to 80	60 to 70	50 to 60
Blinder A	40 to 50	40 to 50	40 to 50	40 to 50	40 to 50	40 to 50	40 to 50
Antisubmarine force	65 to 90	75 to 130	105 to 175	125 to 210	135 to 215	125 to 205	110 to 190
Madge	65 to 75	60 to 70	55 to 65	50 to 60	40 to 50	30 to 40	20 to 30
New ASW aircraft	0 to 15	15 to 60	50 to 110	75 to 150	95 to 165	95 to 165	90 to 160
General-purpose force	100 to 120	90 to 140	90 to 140	90 to 130	90 to 130	90 to 130	90 to 130
Beagle	100 to 120	90 to 110	60 to 80	30 to 40	30 to 40	30 to 40	30 to 40
Brewer	0	0 to 30	30 to 60	60 to 90	60 to 90	60 to 90	60 to 90
Total force in AOB (Rounded)	560 to 670	540 to 730	540 to 760	560 to 750	560 to 740	500 to 720	500 to 690

a. The figures in this table agree for the most part with those found in the IAP paper. The major differences are caused by our determination that some Beagle aircraft can usefully be held in the general-purpose force and that a number of Brewer aircraft can usefully be added to that force as noted in the text; we do not believe now that the Mallow will be placed in operational service and have amalgamated the Mail and land-based ASW aircraft figure under the heading "New ASW aircraft."

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The SNAF also operates a force of about 100 to 120 Beagle light jet bombers. Because these aircraft have a limited combat radius (500 to 550 nm), operations would be restricted to areas within this range of their bases in the Baltic and Black Sea areas and the Sea of Japan. [] their use is primarily in reconnaissance and utility roles, but other known missions include mine-laying and bombing missions. They also could be employed in strikes against coastal installations. The Brewer, a new light jet bomber, may replace some of the Beagles. Even though the Brewer's combat radius is shorter (350 nm), it is still sufficient to allow operations in the mentioned areas, and this aircraft has the advantage of being much faster than the Beagle. The possibility cannot be excluded, however, that the USSR may elect to deploy longer range aircraft in place of the Beagles. []

B. Mission

1. Against Surface Forces

Several classes of submarines are available for long-range operations, the most important of which are equipped with the SS-N-3 cruise missile. Two versions of this missile are operational, the earlier 300-nm SS-N-3A (since 1961) and the 450-nm SS-N-3B (since 1963). (TSD)

The SS-N-3A can deliver a nuclear warhead with a maximum yield of 2.3 megatons. It has a low flight profile of 1,000 to 3,000 feet and uses terminal homing guidance against surface targets. It is carried on 18 submarines, including 6 nuclear-powered E-class Mod I

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(6 launchers each) and 12 modified diesel-powered W-class -- of which 6 have 4 launchers each, 5 have 2 launchers each, and 1 prototype has 1 launcher.

The improved version of the SS-N-3B cruises at supersonic speed at an altitude of about 40,000 feet and descends to an estimated 1,000 to 3,000 feet for the approach to the target. A possible low-altitude, reduced-speed missile similar to the SS-N-3A also may be available. The SS-N-3B is carried by 11 to 13 of the newer submarines, which include 5 to 7 nuclear-powered E class Mod II (8 launchers each) and about 6 diesel-powered J class (4 launchers each). Target acquisition beyond the radar horizon, a current limitation on all cruise-missile submarines, depends on other submarines or aircraft acting as forward observers. All cruise-missile submarines are equipped to fire torpedos, and nuclear warheads probably are available for use against surface forces.

In addition to the cruise-missile submarine force, there are about 280 long-range torpedo-attack submarines of which the majority are older diesel-powered W-class units. Although these units are restricted to barrier-type defensive operations in the northeast Atlantic and northwest Pacific, 13 nuclear-powered (N-class) and 54 diesel-powered (F-class and Z-class) submarines are capable of operations ranging to the mid-Atlantic and mid-Pacific.

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The capabilities of the Submarine Force are augmented by the Soviet Naval Air Forces (SNAF). Currently available for operations against surface forces are approximately 110 Badger A reconnaissance/tanker aircraft, 65 Badger B ASM-carriers, 210 Badger C ASM-carriers, and 40 to 50 Blinder aircraft. Judging from the exercises they have conducted, these forces generally are well trained and well equipped, although their effectiveness is limited by problems of target acquisition and aircraft range. ()

Target acquisition for SNAF aircraft usually is achieved through radio direction finding supplemented by occasional reports from such sources as merchant or fishing vessels. When US surface units have moved under conditions of maximum communications security, the Soviet defenses have had great difficulty in locating them at sea. (TSD)

The limited range of naval aircraft restricts their reconnaissance and strike capability. To overcome this handicap, Long Range Aviation (LRA) bomber units have been assigned a secondary mission of assisting the SNAF in carrying out strikes against surface units at considerable distances from the USSR. ()

2. Against Submarines

Soviet naval authorities have demonstrated a marked awareness in their writings and statements of the threat arising from US Polaris-missile submarines, and the evolving force structure has been heavily oriented toward ASW operations. Two major problems lie at the root of effective Soviet ASW operations -- the detection of attacking

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submarines and the great and growing distances at which ASW operations must be conducted. Soviet ASW capability varies widely with the theater of operation. It appears to be effective in local sea theaters off Soviet-controlled coastlines where surface and submarine ASW forces, heavily supported and protected by aircraft, operate jointly. As distance from the coastline increases, Soviet capabilities diminish rapidly.

The surface forces available for ASW operations consist of more than 100 destroyers of older classes and about 40 new ships constructed since 1960 and equipped with the latest Soviet ASW gear. This latter group includes about 35 of the seagoing Petya and Poti classes of ASW ships and about 6 of the Kashin and Kynda classes of guided missile frigates. The newer Kashin class is believed to be the most important ship in the ASW program.

Increased use of mobile acoustic platforms, including sonobuoys, is evident. Faced with the difficult problem of detecting today's high-performance submarines, the USSR is forced to rely largely on barrier-type submarine patrols carried out by the large fleet of diesel submarines of the W and R classes. Search patrols made up of the growing fleet of nuclear-powered N-class and diesel-powered F-class submarines range farther to sea than the large fleet of W-class and the improved R-class conversions. A portion of the N and F classes, however, will function as forward observers for target acquisition for cruise-missile submarines operating against enemy surface forces and

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will not be available for ASW operations. There is some evidence that the E class may be equipped to fire ASW torpedoes, suggesting a dual role for these vessels. []

Complementing the Soviet surface and submarine ASW capabilities, the SNAF antisubmarine forces currently consist of about 65 to 75 Madge flying boats and some 90 light helicopters.* Although the Madge is capable of conducting ASW operations at ranges in excess of 1,000 nm, the demonstrated ASW capability of the SNAF has been confined basically to coastal waters. Two new long-range ASW aircraft are known, from a variety of sources, to be under development -- the Mail, a twin-turboprop flying boat, and an ASW variant of the Coot, a four-turboprop transport. The Mail flying boat suffers from the same seasonal limitations as the Madge, which is grounded during the winter in most areas because of its need for ice-free water bases. It appears that the Coot variant would be the best aircraft for the ASW requirements of the SNAF. The SNAF have shown a preference for water-based aircraft, however, and there are indications [] of an amphibious version of the Mail aircraft. In this estimate, therefore, the force strengths are shown for a "new ASW aircraft," which includes an undetermined "mix" of both Mail and Coot aircraft. The existence of the Mallow twin-jet flying boat further complicates an estimate of force levels. [] it is now estimated that

* For the estimated order of battle of helicopters and transports, see the IAP.

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about 40 of these aircraft were produced before 1963, but there is still no firm evidence that any are currently operational. Furthermore, because a jet-powered flying boat has many inherently undesirable characteristics (such as a short combat radius) that are technically very difficult to overcome, it is doubtful that any of these aircraft will become operational. Nevertheless, up to 25 Mallow aircraft could be placed in service, probably in the Black Sea area where the operating environment might be compatible with their limited range and need for water bases. ☐

The use of helicopters in Soviet ASW operations has been restricted to operations from land bases. Under construction at the Nikolayev Shipyard, however, is a large ship about 645 feet long by 100 feet across the beam. It is believed to be a naval ship and may possibly be a helicopter carrier. If this evaluation should prove to be correct, it would be the first ship in the Soviet Navy from which helicopters could operate effectively at long distances from the Soviet coastline. ☐

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